



National Transportation Safety Board Survival Factual Report

Survival Factual

Accident Particulars

Date of Accident: October 2, 2005
NTSB#: DCA06MM001
Accident: Capsizing and subsequent sinking of the N.Y.State certified
Public vessel *Ethan Allen*
Location: Lake George, New York near Cramer Point

Vessel Information

Owner: Shoreline Cruises, Inc.
4 Kurosaka Lane
Lake George, N.Y. 12845
Official Number: NY state reg. Number "NY1267FP"
Type of Service: Tour
Year Built: 1964 (*Double Dolphin*)
Place: Rhode Island
Builder: The Anchorage, Inc
Boat Design: Dyer 40
Length: 38 feet
Beam: 12
H.P.: 110
Engine manufacturer: Cummins
Persons required per COI: 1 crew, 1 joint pilot and engineer, 48 passengers
Persons actually on board: 1 master, 47 passengers

1 **Factual Information**

2

3 **Accident Narrative**

4

5 On Tuesday, September 27, 2005, a senior citizens group departed Michigan for a
6 “Fall Color” bus tour lasting seven nights and eight days. Early on October 2, they had
7 departed New Hampshire en route to Lake George, New York, where they were
8 scheduled to take an afternoon boat tour at 1500. Two tour buses were scheduled to
9 arrive at Shoreline Cruises in the town of Lake George to take two individual boat tours
10 of one hour each of Lake George. The first tour bus arrived in Lake George Village with
11 50 passengers about 1315. The Lake George boat excursion was to be their second-to-
12 last night of their tour.

13

14 Forty-seven members of the first tour group boarded the New York-certificated
15 public vessel *Ethan Allen* about 1415. Three passengers did not board the vessel. One
16 passenger had watched the vessel tip to one side while the passengers were boarding and
17 observed that most passengers sat on the side that was tipping. She said that she noticed
18 that not one person from the company directed the passengers to distribute themselves
19 equally while boarding and therefore did not feel safe to take the trip. The other two
20 passengers were among the last three to attempt to board the vessel, however, they were
21 told by the captain they would have to go on the other tour vessel because the vessel was
22 at full capacity. The third person, found a space in the bow section of the vessel. The
23 forty-eighth person was the captain of the vessel and no additional crewmembers were on

1 board. The Certificate of Inspection¹ does require one additional crewmember with
2 maximum passengers number 48 for a total person capacity of 50.

3
4 The vessel departed from Town Dock in Lake George Village for a one-hour tour
5 about 1430, and a New York State-licensed captain operated the vessel. During the trip,
6 the captain was giving a historical narration of the homes living Lake George. The vessel
7 proceeded northbound along the western side of the lake. A passenger described the
8 afternoon of the tour as a “beautiful, calm, and spectacular Sunday afternoon. And we
9 marveling at how calm and glassy the water was, how the day was outstandingly
10 beautiful.”(Charlton) The accident occurred approximately 25 minutes into the tour near
11 Cramer Point, which is approximately 3 miles northwest from Lake George Village, the
12 departure area.

13
14 In the captain’s original statement to representatives of the Warren County
15 Sheriff’s Office on October 2, 2005, he said, “I started to swing the bow of the boat to the
16 right and immediately encountered stray waves from the wake that was produced by the
17 *Mohican*, that was going northbound. As soon as the bow encountered the first wave, the
18 wave caught the boat on right side/starboard side/of the boat. The wave hit the boat more
19 towards the stern. The entire boat then tipped to the left and ... kept right on going
20 [over]. The boat tipped completely upside down.”

21

¹ State of New York- Office of Parks, Recreation, and Historic Preservation. Bureau of Marine and Recreational Vehicles. Certificate of Inspection –Date of Issue May 23, 2005

1 Most of the passengers told investigators that they did not see a wave or any large
2 ships creating any wakes. However, a couple of passengers noted a couple of speedboats
3 about the time of the capsizing. Per a passenger statement “Just prior to us capsizing,
4 there was a small boat that went by, approximately 18-foot in length, about a hundred
5 yards out. And the captain turned to the right about 15 degrees to meet a small wave that
6 he set up, maybe, 8 to 10 inches high. And when he turned to the right, the boat tipped to
7 the left.” (Mahalak, page 13)

8
9 Another passenger claimed “I remember seeing a speedboat go by, and waves
10 started coming. And the reason I remember this is I love to rock, and I thought, oh boy,
11 we’re going to rock. And as the first wave came, the boat started to go way over. And
12 the next thing I saw was people on the other side falling off their chair onto the floor and
13 actually up and onto the people.” (Kidon, page 5)

14
15 Another passenger told investigators that he noticed “a fairly decent size boat that
16 came along to our left coming towards us. And I thought he was a little too close but I
17 wouldn’t say now...my memory was less than 50 yards from us. And this boat, when this
18 boat made a wave in the water, I felt the captain of our boat pull to the left to try to get
19 away from that wave right without too much trouble...and we hit this little wave which
20 wasn’t really a large wave...” (Quick)

21
22 Some of the passengers said that they felt they were thrown from the vessel and,
23 after surfacing, held onto the hull of the capsized *Ethan Allen*. Some of the passengers

1 were under the boat and escaped by pulling themselves free. Others don't recall how
2 they got out (D. Riley). Another passenger felt that the force of the water entering the
3 vessel pushed him out the window (Quirk). One passenger stated that she attempted to
4 swim out from underneath the boat and "ran into plexiglass and had to swim deeper to get
5 out." (L.J Peacock, Warren County) Another passenger said "my head kept hitting the
6 window. It hit the window about three times, and then the boat was flipped. It happened
7 within a few seconds. And I tried swimming up, and I was in this whole enclosed part, so
8 I couldn't get out [the] windows. And after three times trying, I pushed down, I went
9 down, and I came out under the boat, and I came up, and my head came up right next to a
10 dead body floating face down." (Kidon page 6)

11
12 Two passengers with recreational boating experience [Metz and Peacock] stated
13 that when the captain turned the vessel, the bow "took a nose dive" or seemed as if it
14 "was digging in," and then the starboard side of the vessel rose. Most of the survivors
15 said that the passengers all shifted to the left in their seats or slid to the port side of the
16 vessel. The vessel's tilt to port increased, and more people sitting on the starboard side
17 tumbled to the port side, in many instances, falling onto the passengers seated on the port
18 benches. The vessel continued to roll over and most of the passengers and captain concur
19 that the capsizing occurred within a few seconds to portside.

20
21 The following table lists the survivors and their seating location prior to capsizing
22 and their recollections of which side the *Ethan Allen* capsized. Further, the table will
23 show witness accounts of the capsizing.

Number	Where seated	Capsizing left/right/unsure
Captain	right stern	left
1.Survivor	right bow area	left
2.Survivor	right bow area	left
3.Survivor	right bow area	left
4.Survivor	right, 1st bench, aisle	left
5.Survivor	right, 1st bench, window	left
6.Survivor	right, 3rd bench, aisle	left
7.Survivor	right, 3rd bench, window	unsure
8.Survivor	right, 4th bench, aisle	left
9.Survivor	right, 4th bench, window	left
10.Survivor	right, 5th bench, window	unsure
11.Survivor	right, 7th bench, aisle	left
12.Survivor	right, 8th bench, aisle	left
13.Survivor	right, 8th bench, window	left
14.Survivor	middle seat bow area	left
15.Survivor	middle seat bow area	left
16.Survivor	left bow area	left
17.Survivor	left bow area	left
18.Survivor	left, 3rd bench, aisle	left
19.Survivor	left, 3rd bench, middle	left
20.Survivor	left, 4th bench, aisle	left
21.Survivor	left, 4th bench, middle	unsure
22.Survivor	left, 5th bench, aisle	left
23.Survivor	left, 6th bench, aisle	left
24.Survivor	left, 6th bench, middle	left
25.Survivor	left, 6th bench, window	left
26.Survivor	left, 8th bench, aisle	left
27.Survivor	left, 8th bench, window	left
1. Witness	divers	right
2. Witness	911 cellular callers-couple	right
3. Witness	Canoeist	right

1

2 Another eyewitness account recalls, “Not a lot of boat traffic for Lake George. It
3 was rather quiet, and so I’m looking north, and I’m watching the boat, you know, the
4 normal routine. ...and it was just heading north in the bay, and then it made a right-hand
5 turn, and it makes a really pretty sharp right-hand turn. When it made the turn, the
6 minute is made the –the second, not minute, the second it made the turn, I said to Larry,
7 oh, my God, the *Ethan Allen* is going to like, it’s tipping over. I mean from the second,
8 from the second it made that turn, it was unstable. And it was like all over. I mean it was

1 like all over. And I just knew it was going down.” (Cloutier-Steinhart, page 22, line 17).
2 She is also one of the first cellular 911 calls received by Warren County Sheriff’s Office.

3

4 Investigators received varying accounts of the capsizing events. A man in a canoe
5 with his two children was in the vicinity of Cramer Point heading west when he saw the
6 *Ethan Allen* make a sharp right turn and overturn. He recalled, however, that the boat
7 capsized to starboard. The man stated that the “lake was calm and there were no real
8 waves to speak of.” He also said that just before the vessel capsized, he did not see any
9 obstructions that would have caused the *Ethan Allen* to make a hard bank to the right.

10 (Hart Warren County)

11

12 Two divers, who were trained/practicing in the lake, noticed that the *Ethan Allen*
13 had a lot of people on board and that the bow was sitting “pretty low while the stern was
14 sitting pretty high above the water.” The divers continued watching the vessel while
15 approaching Cramer Point. According to their statement “the *Ethan Allen* attempted to
16 make a starboard turn, the bow went down in the water, the stern raised slightly, and at
17 that point, the boat capsized completely over.

18

19 Several recreational boaters were in the vicinity and observed the capsizing.
20 Many of the witnesses immediately called 911 on their cell phones to report the accident
21 and then proceeded to the site to throw life preserves and, flotation cushion and rings, to
22 assist in rescuing survivors. The Warren County Sheriff Office logged in the first cellular

1 telephone call at 1454 made by a couple. One witness account indicated “the ship was
2 upright at about [a] 50-degree angle with the bow down.

3

4 The stern was sticking about 4 feet out of the water with trapped air. The air was
5 escaping and it was slowly sinking but probably took 40 minutes from the time it rolled.”

6 (Morin page 7, line 1-6) The Ethan Allen started to slip below the water surface and
7 came to rest upright on its keel, on silt, in 59 feet of water.

8

9 The captain and 18 passengers survived the incident. All of the survivors with the
10 exception of the captain were transported by ambulance to a local hospital. All of the
11 surviving passengers were treated and then released from the hospital. 20 passengers
12 died in the accident and autopsies were performed.

13

14 **Injuries**

15 Table 1 follows the International Civil Aviation Organization (ICAO) format.

16 Table 1. Injuries Sustained

Injury Type	Crew	Passengers	Total
Fatal	0	20	20
Serious	0	3 ²	3
Minor	0	6	6
None	1	18	19
Total	1	47	48

17
18
19
20
21

Title 49 CFR section 830.2 defines a fatal injury as any injury that results in death with 30 days of an accident. It defines serious injury as that which requires hospitalization for more than 48 hours, commencing within 7 days from the date the injury was received; results in a fracture of any bone (except simple fractures of fingers, toes or nose); causes severe hemorrhages, nerve, muscle or tendon damage; involves any internal organ; or involves second- or third- degree burns, or any burn affecting more than 5 percent of the body surface.

² Based on length of stay in the hospital

1 **Meteorological Information**

2
3 The National Weather Service (NWS) office in Albany, New York, issued no
4 hazardous weather advisories for the area on the day of the accident. The water surface
5 was reported as 68° Fahrenheit. All witnesses described the lake waters as calm, except
6 for the areas occasional wakes generated by various vessels.

7
8 Weather observations at Floyd Bennett Memorial Airport in Glens Falls, New
9 York, about 17 miles southeast of the accident site, were taken both before and after the
10 accident. The same weather conditions were recorded for 1353, 1453, 1553, as noted:
11 Wind calm, visibility unrestricted at 10 statute miles, sky clear, temperature 71 degrees F.

12
13 **Medical and Pathological Information**

14
15 Albany Medical Center, Albany, NY performed the autopsies for each of the 20
16 fatalities. All victims were determined to have died as a result of asphyxia due to
17 drowning.

18
19 The autopsy findings showed that 3 victims had rib fractures, 9 victims had
20 varying amounts of subgaleal hemorrhage (bleeding underneath the scalp), 1 victim had a
21 fracture of the thyroid cartilage in the neck. Of the 6 victims who did not have significant
22 injuries, 1 had significant coronary artery disease with up to 80% occlusion of his
23 coronary arteries, 1 had critical coronary artery disease with 95% occlusion of his left

1 anterior descending coronary artery, and 1 had a small area of scarring in his heart, 1 had
2 severe cardiomyopathy.

3
4 Glens Falls Hospital treated all survivors. Eighteen surviving passengers
5 sustained injuries such as cold-water immersion, abrasions, neck pain, stiff neck, and
6 knee pain, and were treated and released the day of the accident. One surviving
7 passenger was admitted to the hospital for overnight observation and then released. Five
8 passengers stayed for 2 days due to cold water immersion, chest pain, and aspiration
9 pneumonia. Three other passengers stayed for 3 days due to chest pain or observation for
10 near-drowning complications.

11
12 According to the U.S. Coast Guard Addendum to the United States National SAR
13 Supplement 3.7.2 and 3.7.2.1: Cold shock can occur in water colder than 20°C (68°F)
14 with symptoms increasing as water temperature decrease to freezing. Healthy individuals
15 may succumb to cold shock through uncontrolled respiratory responses, while those with
16 underlying cardiac disease may experience sudden death due to cardiac arrest or
17 ventricular fibrillation (uncoordinated heart beats). There are four stages of immersion in
18 which death can occur in cold water. (1) Initial Cold Shock Response can kill within 1-3
19 minutes, (2) Cold Incapacitation can kill with 5-30 minutes of immersion by impairing
20 physical performance, (3) Hypothermia occurs after 20-30 minutes of immersion and will
21 progress until shivering stops and unconsciousness occurs, (4) Circum-Rescue Collapse
22 can occur just prior to, or during, rescue. It can also occur minutes to several hours post-
23 rescue. Symptoms ranging from syncope (fainting) to death, due to cardiac standstill.

1 **Survival Aspects**

2

3 ***Escape and Rescue***

4 **Summary.** Of the witnesses on shore and in other boats whose statements were
5 collected, all recalled seeing the vessel capsize to starboard. All survivors stated,
6 however, that the vessel capsized to port. All of the witnesses and rescuers said that they
7 did not see any lifejackets surface from the *Ethan Allen*. All witness accounts indicate
8 that after the Ethan Allen capsized and overturned, it righted itself while it was taking on
9 water and then took some time to sink. The timeframe for the actual sinking varied
10 among the witnesses from 15 to 40 minutes. Excerpts from the statements of witnesses
11 and accident survivors follow later in this report.

12

13 ***Emergency Response***

14 The Fire Chief of Lake George Fire Department was dispatched at 1456 and
15 arrived at 1504 at a residential area on Cramer Point Road, where he then proceeded to
16 set up an incident command post and became the incident commander (IC). An
17 ambulance from Lake George and Empire Medical Service were already on scene and
18 vessel occupants were being transported to shore. Meanwhile, three trauma CPR's
19 arrived on shore and emergency medical service (EMS) personnel proceeded to take care
20 of the arriving victims. They then proceeded to set up a triage system to prioritize the
21 incoming survivors and victims. An EMS staging area was set up at Trinity Rock Road,
22 which is located about .05 mile from the command post, and a Landing Zone (LZ) for a
23 helicopter was set up at Green Harbour Beach, which is ¼ mile from the command post.

1 A total of 15 ambulances dispatched, with the first ambulance arriving at 1515. Warren
2 County Sheriff's Office dispatched 21 units, with the first unit arriving at 1506. Lake
3 George Fire department, roughly 3 miles from the command post, sent the Fire Chief, 3
4 rescue and 2 engines with the first arriving unit at 1504 and the two vessels from the fire
5 department arriving at about 1510. Lake George Park Commission sent 3 vessels that
6 arrived approximately 7 minutes after they were dispatched at 1455. The EMS
7 coordinator requested two coroners to assist with the victims and the Warren County
8 coroners were en-route approximately 1620.

9
10 The survivors were transported to Glens Falls Hospital, located approximately 14
11 miles from Trinity Rock Road. The first arriving survivor was admitted to Glens Falls
12 Hospital at 1605, approximately an hour after the capsizing occurred.

13
14 The divers, who witnessed the capsizing, also called 911 and told the dispatch
15 center that they had five professional divers ready to be activated and just needed a ride.
16 The *Ethan Allen* was approximately 1,000 yards from the divers. After about 7 minutes,
17 the divers called 911 for the second time. Finally, about 15 minutes after the capsizing, a
18 pleasure boater was able to give the divers a ride to the scene. Upon arrival they noticed
19 that many pleasure boaters, Warren County Sheriff's, State Police boat and Lake George
20 Parks Commission were already at the site. Three of the five divers remained on the
21 surface while two divers dived down to check inside the vessel.

1 ***Vessel Arrangement Before and After Accident.***

2 On each side of the vessel were five plexiglass windows; one window with
3 dimensions of 59 x 36 inches, three with dimension of 58 x 36 inches and one with
4 dimension of 50 x 36 for a total of five windows on one side. The Plexiglas windows can
5 be opened by hooking/latching the window to the underside of the canopy roof. The bow
6 section had three glass windows similar to a bay window with each side [29.5 x 37.5] as a
7 fixed pane while the center pane [26 x 38] was in the open position. According to the
8 survivors' statements, all windows except the two fixed panes at the bow were open
9 during the cruise. According to the divers who extracted the victims shortly after the
10 capsizing, they found the first plexiglass window on the starboard side near the bow was
11 down. The report prepared by the Warren County Sheriff's Office indicates that its
12 personnel also found that the first plexiglass window, starboard side, was in the down
13 position. In addition, the sheriff's office found that two windows had become detached.
14 One of the two windows would have been the first plexiglass window, port side, and the
15 second window would have been the 4th window starboard side. A framed wooden
16 canopy enclosed the seating area.

17
18 The *Ethan Allen* had 19 slatted wood park-style benches with metal legs that were
19 bolted to the main deck. Eight benches designed to accommodate three people faced
20 forward along the port side and eight benches that accommodated two people faced
21 forward along the starboard side. Two three-person benches were in the bow portion of
22 the vessel. One bench was positioned so that its back was against the port bulkhead and

one bench was against the starboard bulkhead. The nineteenth bench, positioned center forward, had a box beneath it that stored 5 child-size lifejackets.

The adult lifejackets were stowed in an aft cabinet adjacent to the operator's station, with latched door at the centerline of the vessel.

The captain's operating station was at the far aft starboard stern area of the vessel. It was accessible with an open entry measuring 30 inches in width. The boarding area the day of the accident was located on the port side and defined with an open entry of 30 inches in width.



Photo shows captain's station, starboard entry and the adult lifejacket location.

1 According to survivor accounts, the fatality victims were not seated in any one
2 particular area of the vessel. The victims were on both the port and starboard sides of the
3 vessel and seated in either window or aisle seats before the capsizing.

4
5 ***Description of Escape.***

6 According to one passenger, “As the first wave came, the boat started to go way
7 over. And the next thing I saw was people on the other side falling off their chairs onto
8 the floor and actually up and onto the people. Some went on the floor, and some went on
9 top of people.” (Kidon page 5 line 12). She said that she believes she pushed down, and
10 came out under the boat. She swam around the *Ethan Allen* to a pleasure boater who
11 threw a lifejacket to her and then helped her and other survivors into his boat. The
12 pleasure boater then transported the accident victims to shore.

13
14 Another said that he “just landed in the water” as the boat overturned and did not
15 have to swim to the surface. He stated that he then tried to save people by pushing them
16 closer to the boat. He recalled a pleasure boat approaching, and when the operator turned
17 off his engine, they started to scream at him to throw them lifejackets. The boaters began
18 to throw lifejackets and the passengers started to distribute the lifejackets until everyone
19 in the water or treading water had a lifejacket. He said that he eventually boarded a
20 pleasure boat, which took him and whom other survivors, to shore. (Mahalak, page 15-
21 16)

1 A third passenger said that she was watching another passenger at the time the
2 vessel made a sharp turn to the left. “I saw her giggle” she stated, “and the next flash was
3 I saw terror on her face. And I saw her fall backwards into the water. And at that point, I
4 remember sliding onto the floor, like sliding, and I kind of just torpedoed into the water.
5 And I was under the water, and it was very, very dark green, blackish, and I can
6 remember flailing in the water.” (Charlton, page 19 line 11-20) But something that I then
7 noticed is that the black-green water became lighter. And that’s when I was able to
8 resurface. And I realized that I was holding onto the side of the capsized boat. Now
9 when I broke through the water, and I came up the side of that boat, there must’ve been
10 15 or 20 other people already [holding onto] it. I think I was the last one ... because I
11 was at the very end of the line.” (page 20, line17). The passenger recalls rescue boats
12 coming, and people throwing ropes, rings and lifejackets to the passengers holding onto
13 the capsized vessel. Some Good Samaritans reportedly jumped in the water to help with
14 the rescue of the passengers. At some point, people started shouting to get away from the
15 boat because it was sinking. The pleasure boaters, along with the local rescue vessels,
16 helped the survivors out of the water and provided some comfort, warmth, kindness, and
17 transportation to shore to awaiting EMS personnel.

18
19 Before the divers began their rescue efforts, they noted that the ship rolled
20 over and “was upright at about a 50-degree angle with the bow down” and, because of the
21 air trapped in the stern, it was sticking about 4 feet out of the water. As air escaped, the
22 boat sank slowly and probably took 40 minutes from the time it rolled.” (page 7, line 1-6)
23 Most of the accident victims were found in the bow area, starboard side. The vessel came

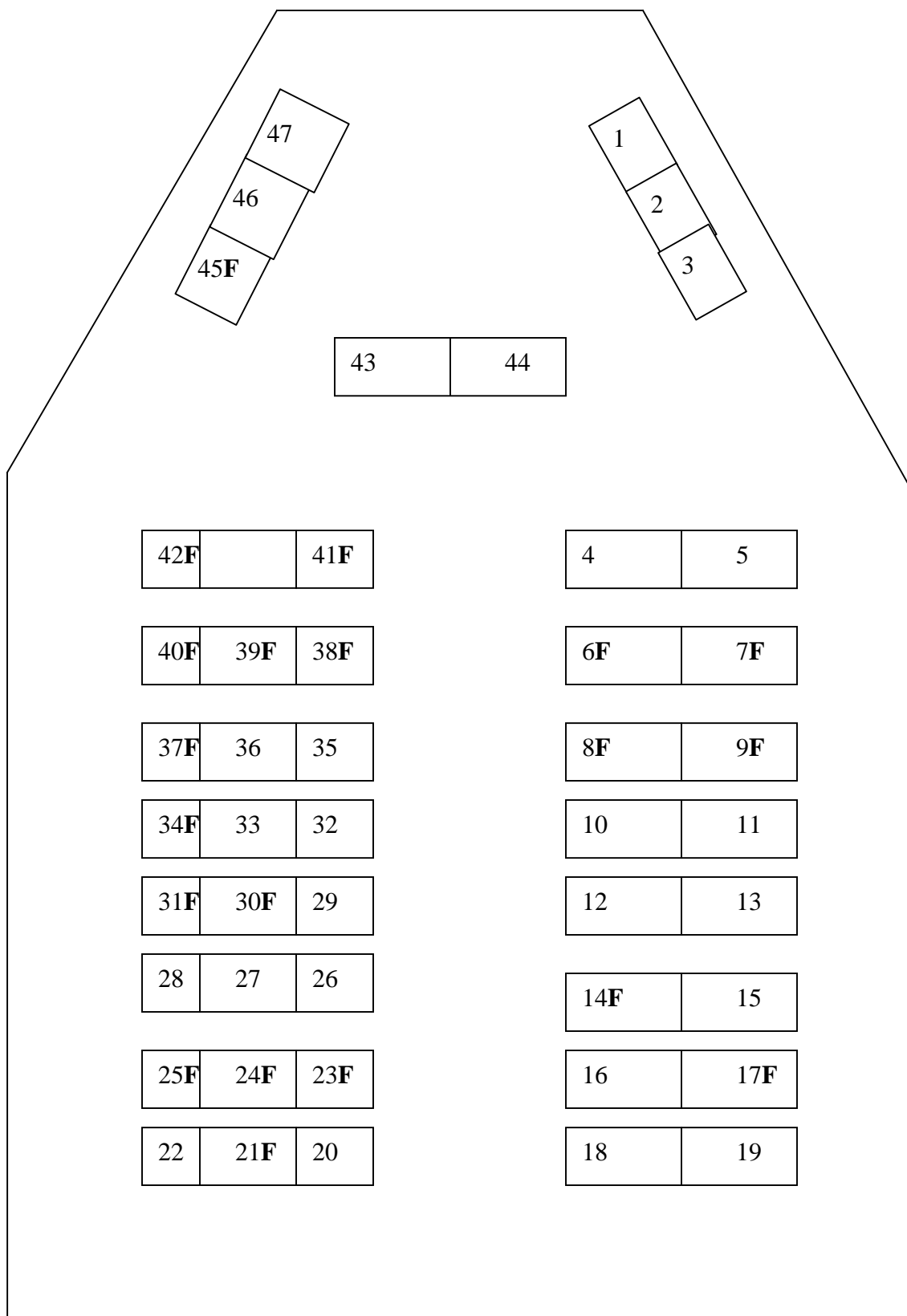
1 to rest in 59 feet of water. (page 8, line 3). After retrieving the bodies [they believed
2 they extracted 15 passengers], they performed a perimeter search looking for additional
3 victims. They then made a search of a debris field measuring approximately 25 feet wide
4 by 200 feet long, to retrieve personal artifacts. The total dive including picking up the
5 debris lasted 24 minutes. The divers stated that retrieving the bodies was the shortest
6 aspect of the dive because it was a matter of finding a body, pulling it out, and bringing it
7 slowly to the surface to the waiting crew. Further, they initially started their dive in 10
8 feet of water and ended up in about 35 feet closer to the bow section. The majority of the
9 dive was spent finding the personal belongings of the passengers.

10
11 The divers said that eventually the scene became too chaotic for them because
12 they didn't have their own boat from which to coordinate the dives of their personnel, and
13 they decided to turn the dive over to Warren County Sheriff's Office. The sheriff's office
14 divers found one additional victim in the stern area of the vessel.

15
16 ***Description of passengers and fatalities***

17 The average age of the survivors and the captain was 73, and physicians and
18 others characterized them as very active and physically mobile. Only one passenger who
19 boarded the *Ethan Allen* used a walker (she suffered from arthritis). All other passengers
20 were ambulatory and were able to board the vessel independently. The age range of
21 survivors was from a 54-year-old female to an 81-year-old male. The ages of the
22 fatalities ranged from a 64-year-old female to an 89-year-old female.

1 The following illustration shows the seating arrangement of the passengers and
2 where the fatalities were sitting prior to capsizing, along with a table showing the
3 passengers sex, age, weight, height and body mass index (BMI).
4



1 Table shows passenger sex/age/weight/height/BMI

SEAT #	SEX	AGE	WEIGHT	HEIGHT	BMI	FATAL
1	F	75	189	64"	32.4	
2	F	58	110	64"	18.9	
3	F	67	144	64"	24.7	
4	F	77	140	60"	27.3	
5	F	76	185	62"	33.8	
6	M	87	194	68"	29.5	F
7	F	75	180	60"	35.2	F
8	M	82	211	66"	34.1	F
9	F	76	128	67"	27.7	F
10	F	75	135			
11	F	79	140	62"	25.6	
12	M	69	205	60.5"	29	
13	M	79	200	62"	25.7	
14	F	77	164	62"	30	F
15	F	76	150	62"	27.4	
16	M	77	170	68"	25.8	
17	F	73	194	63"	34.4	F
18	M	67	260	71"	36.3	
19	F	62	165	68"	25.1	
20	F	67	137	64"	23.5	
21	F	79	198	60"	38.7	F
22	F	54	195	62"	35.7	
23	M	83	158	66"	25.4	F
24	F	78	204	63"	36.1	F
25	F	78	170	66.5"	27	F
26	F	74	190	66"	30.7	
27	F	76	129	65.5"	21.1	
28	M	81	146	67.5"	22.5	
29	F	78	135	60"	26.4	
30	F	82	176	64"	30.2	F
31	F	89	204	65"	33.9	F
32	M	79	170	70"	24.4	
33	F	77	142	67.5"	21.9	
34	F	78	210	64"	36	F
35	F	74	180	64"	30.9	
36	F	67	155	66"	25	
37	F	68	217	65"	36.1	F
38	F	77	198	64.5"	33.5	F
39	F	74	126	61"	23.8	F
40	F	64	247	64"	42.4	F
41	M	80	173	63.5"	30.2	F
42	F	80	155	60"	30.3	F
43	F	73	165	63"	29.2	
44	M	77	175	60"	23.7	
45	M	76	235	65"	39.1	F
46	F	74	230	67"	36	
47	F	65	268	64"	46	
48	M	74	170	69"	25.1	

Total	8522				
Age of Fatalities	1556/20=77.8	Weight/F	3742	187.1	
Age of Survivors	1953/28=72.4	Weight/S	4780	171	
Mean Age	74.4	Mean W.	8522	177.5	

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According to the Center of Disease Control and Prevention (CDC) Body Mass Index (BMI) is a number calculated from a person's weight and height. BMI is a reliable indicator of body fatness for people. For adults 20 years old and older, BMI is interpreted using standard weight status categories that are the same for all ages and for both men and women. However, a couple of considerations are that at the same BMI, women tend to have more body fat than men. And older people, on average, tend to have more body fat than younger adults. Further, BMI is not a direct measure of body fatness and that BMI is calculated from an individual's weight, which includes both muscle and fat. As a result, some individuals may have a high BMI but not have a high percentage of body fat.

The standard weight status categories associated with BMI ranges for adults are shown in the following table.

BMI	Weight Status
Below 18.5	Underweight
18.5 – 24.9	Normal
25.0 – 29.9	Overweight
30.0 and Above	Obese

15

1 Staff was able to obtain the height and weight of each passenger and then
2 calculate the BMI. The average BMI of the survivors was 27.92 and the average BMI of
3 the fatalities according to their autopsy reports was 32.68. Of the fatalities, 15 were
4 females and 5 were males with a BMI of 30.89 and 29.76 respectively.

5
6 ***Safety briefing and crewmember***

7 As noted earlier, the passengers did not recall receiving a safety briefing, and
8 most stated that they did not remember being told by the captain where the lifejackets
9 were located. The passengers who were aware of where the adult lifejackets were stowed
10 said that they had looked for them earlier in the voyage, when they had boarded. One
11 passenger said that she assumed that both child and adult lifejackets were stowed in the
12 box beneath a two-seater bench near the bow of the vessel. None of the lifejackets were
13 found floating free after the capsizing.

14
15 New York State, in a November 14, 1986, policy memo, called for vessels, when
16 carrying more than 20 passengers, to have a second crewmember on board, in addition to
17 the captain. According to the memorandum "In the event of an emergency afloat, the
18 vessels operator may be too busy to assist his/her passengers, or perhaps incapacitated
19 himself. This would become the responsibility of the crewmember, as well as assisting in
20 docking, undocking, and acting as an additional lookout." The crewing requirements are
21 based on the number of passengers carried.

1 The most recent COI for the *Ethan Allen*, issued on May 23, 2005, permitted a
2 maximum of 48 passengers and required a captain and a crewmember.

3
4 *Actions taken by New York Park State Office of Parks, Recreation and Historic*
5 *Preservation since the accident.*

6
7 On October 7, 2005 the Governor directed the New York State Office of Parks,
8 Recreation and Historic Preservation to take interim steps pending the full outcome of the
9 NTSB investigation including strengthen staffing requirements for public vessels
10 including experience and training requirements for crewmembers; require a verbal safety
11 briefing for passengers before commencement of operation on the use and location of
12 personal flotation devices and other safety devices; and increase penalties for owners and
13 operators who fail to comply with statute, regulations and conditions of certificate of
14 operations.

15
16 March 02, 2006 the Governor unveiled comprehensive legislation that would
17 improve safety for commercial boat passengers and crews. The proposed legislation
18 require all public vessels certified to carry 20 or more passengers be equipped with at
19 least two means of exit on each deck and make it a violation for individuals who obstruct
20 an exit; make it unlawful to operate a public vessel with less than the required crew
21 members specified in the COI or temporary permit, authorize the suspension or
22 revocation of the license of any master, pilot, or engineer who operates the vessel in this

1 unlawful manner, and charge the vessel owner with a misdemeanor if found guilty of
2 permitting operation

3
4 New York State Office of Parks, Recreation and Historic Preservation came out
5 with a proposed Technical Guidance for the Public Vessel Operators. In the draft
6 technical guidance the training of a crewmember must receive “ annual training and
7 orientation in the proper use of the vessel’s firefighting, life saving, visual distress,
8 communication, propulsion and steering equipment. Such training should be noted
9 identifying the individual so trained and be recorded in the vessel’s log book.”

10 A daily log book must be maintained and required on every vessel certified to carrying
11 more than 20 passengers It should include information such as weather conditions,
12 drills, operations and maintenance as well as noting unusual events.

13
14 According to their proposed technical guidance “prior to getting underway the
15 operator of the vessel must make a safety and security announcement throughout the
16 vessel. This announcement must include information with respect to the location and
17 proper donning instructions for life jackets. In addition the location of fire extinguishers
18 and life rings or cushions should also be pointed out. Vessels with passenger limitation
19 on elevated decks should also make note of that fact during this announcement.
20 Passengers should also be advised to be aware of any situation or security concern aboard
21 the vessel and report such concerns to the crew.”

1 In the proposed Technical Guidance for the Public Vessel Operators, “all
2 public vessels must have two means of egress on each level occupied by passengers. On
3 vessels 65 feet or less in length a window of sufficient size may be used as one of the
4 required means of escape provided it does not lead directly overboard, it can be opened or
5 is designed to be kicked or pushed out and is suitable marked and mentioned during the
6 pre-departure safety briefing. The two means of escape must be widely separated at
7 opposite sides of the space so as minimize the possibility of one incident blocking both
8 escapes.”

9
10 The dimensions must be such so as to facilitate easy movement by individuals
11 when wearing lifejackets. The minimum opening for a doorway must be 32 inches;
12 windows must be 24 inches wide.

13
14 Vessels having a deck area of less than 32 square feet need only have one means
15 of egress however more are preferred.

16
17 The information provided is taken from a proposed draft technical guidance for
18 the public vessel operators.